REMARKS

Claims 1-24 are pending in the application. Claims 1-7, 11-13, 15, 16, 18, 19 and 21-24 are withdrawn from consideration.

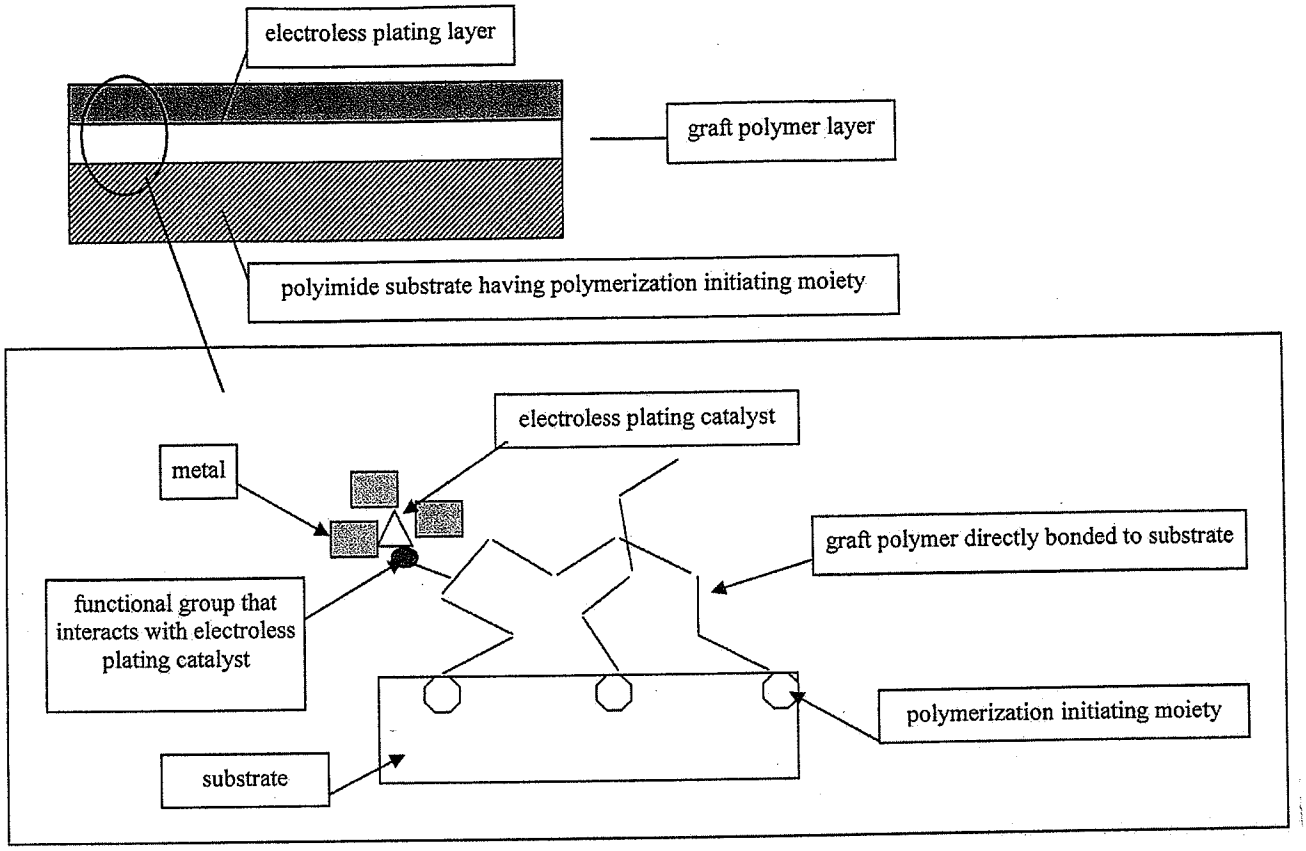
Response to Claim Rejections Under 35 U.S.C. § 103(a)

Claims 8-10, 14, 17 and 20 are rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Ibbitson et al (U.S. Patent Application Publication No. 2005/0112369 A1; "Ibbitson"). Claim 20 is further rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Siefker (U.S. Patent No. 3,867,759) in view of Ibbitson or vice versa.

Applicants respectfully traverse the above-identified § 103(a) rejections, at least for the following reasons.

The presently claimed invention provides a simple method of forming a conductive layer that exhibits excellent adhesion to an insulating substrate, even though the substrate has a smooth surface. Specifically, the presently claimed invention employs an insulating substrate including a polyimide having a polymerization initiating moiety in the skeleton thereof, and forms a graft polymer layer on the substrate.

Furthermore, an electroless plating catalyst is applied to the graft polymer and a conductive layer is formed by way of electroless plating. Since the graft polymer has a functional group that interacts with the electroless plating catalyst or the precursor thereof, for example, as described in claim 8, a conductive material having a conductive layer that exhibits excellent adhesion to the substrate can be achieved. The process of forming a conductive layer that exhibits excellent adhesion to the substrate is represented graphically below.



In comparison, Ibbitson discloses a method of enhancing the adhesion between a metal surface and an organic polymeric material, by using an adhesion promoting composition including polymeric particles having a mean diameter of 1 to 50 nm. See, for example, the Abstract and paragraphs [0011]-[0013] of Ibbitson.

Although at paragraph [0061], Ibbitson teaches that the organic polymeric material may be polyimide, Ibbitson does not teach that the polyimide has a structure as specified by the presently claimed invention. Moreover, Applicants respectfully disagree with the Examiner's characterization that the "useful polymeric material" containing "at least one multiethylenically unsaturated monomer and at least one unsaturated water soluble monomer" corresponds to the organic polymeric material. In fact, the "useful polymeric material" containing "at least one multiethylenically unsaturated monomer and at least one unsaturated water soluble monomer" correspond to the polymeric nanoparticles (PNPs.)

Additionally, the method of Ibbitson describes attaching a metal layer to an organic polymeric material via an adhesion promoting composition, rather than via a graft polymer that is directly bonded to the substrate.

Indeed, as described on page 2, second paragraph of the present specification, the conventional technique of laminating a copper foil with an adhesive to a polyimide substrate has various drawbacks, such as low heat resistance of the resulting circuit board due to a low heat resistance of the adhesive. Therefore, one aspect of the present invention is to provide a method of forming a conductive layer on a substrate without using an adhesive such as the adhesion promoting composition including the PNPs of Ibbitson.

In view of the above, Applicants respectfully submit that the Examiner has failed to make a *prima facie* case of obviousness. Specifically, one skilled in the art would have been motivated to omit the polymeric particles, which is an essential component of the invention, from the structure of Ibbitson. Moreover, Siefker does not remedy the above deficiency in Ibbitson.

Accordingly, claim 8 is patentable over Ibbitson, alone and in combination with Siefker. Claims 9, 10, 14, 17 and 20 are also patentable, at least by virtue of their dependence from claim 8. Therefore, Applicants respectfully request reconsideration and withdrawal of the § 103(a) rejections of claims 8-10, 14, 17 and 20.

Conclusion

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

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